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Ontario Department of Education

Recommendations and Regulations

FOR

THE ESTABLISHMENT, ORGANIZATION,
AND MANAGEMENT

OF

Agricultural and Household Science Departments

IN

CONTINUATION AND HIGH SCHOOLS AND
COLLEGIATE INSTITUTES

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO

TORONTO
Printed and Published by Clarkson W. James, Printer to the King's Most Excellent Majesty
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meetings should be specially invited the members of the local Agricultural and Horticultural Societies, Farmers' Clubs, Women's Institutes, and rural School Boards, but it should be well understood that in the present condition of public opinion active propagandism by the Committee in particular is indispensable.

The second of these obstacles is due to several causes, some of which will disappear only as rural conditions change. One cause, however, the present scheme of Agricultural Education will remove before many years: Heretofore, a large number of pupils have left school after passing the High School Entrance Examination and even before completing the courses for Form IV. They have not aimed at teachers' certificates or University Matriculation. They have had in view the occupations of the farm, and the school courses have offered them no inducement to remain. The courses herein provided should supply this omission.

So far as School Boards are concerned, the scheme for the distribution of the Government grants offers them liberal encouragement to establish and maintain Agricultural and Household Science departments; and, so far as the teachers are concerned, the changed attitude of the Boards towards the school courses and the larger salaries they will be able to pay, as well as the assistance the Minister offers the teachers in preparing for special certificates, will, no doubt, before long counteract to a large extent the present dominant influence of academic tradition and the Departmental and the University examinations.

CONDITIONS OF ESTABLISHMENT

3. The establishment by a School Board of an Agricultural or Household Science department or of both departments under Section 7 of the Industrial Education Act may be approved by the Minister when it is shown to his satisfaction—

(1) That the school is so situated as to be readily accessible to pupils from the surrounding rural districts.

(2) That there is a reasonable prospect of an adequate enrolment of pupils.

(3) That the Board has provided:

(*a*) An Advisory Agricultural Committee consisting of eight persons, who shall be appointed by the Board as follows: Four members of the School Board, including one representative of the Board of Public School Trustees and one representative of the Board of Separate School Trustees, if any; and four persons who are resident ratepayers of the local municipality or the county or district in which the school is situated or the department is established, who are actually engaged in agricultural pursuits and who are not members of the School Board.

(*b*) Adequate and suitable accommodations and equipment as prescribed in Regulations 4 and 5.

(*c*) A staff adequate and suitable for the teaching of Agriculture or Household Science or of both.

(*d*) A general organization of the whole school in accordance with the regulations pertaining to the class of schools concerned.

NOTE.—After June, 1915, under the direction of the Minister of Agriculture, not of an Advisory Agricultural Committee, short courses in Agricultural subjects will be conducted by the District Representatives of the Department of Agriculture for farmers and their grown-up sons. The School Fairs will also be conducted as educational projects by the same officers, who will associate with themselves the Public School Inspectors and the teachers concerned in the

organization and management. The school departments in Agriculture and Household Science will be managed by Advisory Agricultural Committees, and will provide for a general education suitable for those whose vocation will be some occupation of farm life, as well as for instruction in these special departments.

ACCOMMODATIONS

4. Below are detailed the requirements for the accommodations of the Agricultural and Household Science Departments. The grades of the accommodations recognized below shall be estimated by the Director or Inspector concerned, in his official report on each department, according to their character and extent.

I. For the Courses in Agriculture

Agricultural Class-room.—A special class-room for agricultural work on the ground floor and near the experimental plots, large, well-lighted, and furnished with suitable blackboards, heavy individual laboratory tables at which work on soils, plants, etc., may be carried on, and with a large laboratory table for the teacher's use, equipped for giving demonstrations. This room should be in the school building; but, for temporary use, the Minister may approve of a room in a building adjacent to both the experimental plots and the school building. Four grades.

Work Shop.—Practical instruction in shop work should be given in the Manual Training room if one has been provided, or in a special room either in the school building or, preferably, in a separate building adjacent to the school. The room should be about 30 x 40 feet; this room should be above ground, well-lighted and ventilated, and provided with blackboards, having one square edge on which a tee-square may be used. A temperature of about 60 degrees should be maintained. Four grades.

Store-room.—Adjoining each of the Agricultural Class-room and the Work Shop, there should be a well-lighted and commodious store-room; in the case of the former, for the apparatus, charts, models, plant and insect mounts, supplies of soil, etc.; and in the case of the latter for the storage of tools, lumber and other material. Four grades.

Other School Rooms.—For some of the instruction in Chemistry and Physics the chemical and physical laboratories of the Science classes of the school will be suitable; the rest may be taken up in the Agricultural Class-room and the Work Shop.

Experimental Plots.—The land used for experimental plots should, if at all practicable, be within the school grounds and so located that it may be within ready view of the public. If there is not room in the school grounds, it should adjoin them. For a commencement, an area of eight or ten square rods may be found sufficient; but as public interest grows and the difficulties of supervision are overcome, it should be enlarged. The land should be safeguarded from trespassers. It should also be unshaded by buildings or trees, and the experiments in the plots should be clearly labelled so that the work may be readily understood. Four grades.

II. For the Courses in Household Science

Special Building.—In lieu of the household accommodations specified below, a dwelling-house might be rented, when feasible, in the immediate neighbourhood of the school, for the purposes of Household Science, as it offers facilities for teaching the subject in a very practical manner. When this plan is proposed the approval of the Minister should be secured beforehand. Four grades.

Kitchen.—A room 30 x 40 feet is necessary for from twenty to twenty-four pupils, either in the school building or in an adjoining building. If the kitchen is in the school building, the top story is most desirable; if it is necessary to use the basement, the room should be dry, and well lighted and ventilated. Four grades.

Store-room and Pantry.—A separate store-room and pantry should be provided where possible. Four grades.

Dining-room.—In many cases a separate dining room cannot be provided, but table service may be taught on the supply table, which is generally placed in the centre of the cooking tables. Four grades.

Other Class-rooms.—Sewing may be taught in an ordinary class-room and Science in the school laboratories.

EQUIPMENT

5. The following are the requirements for the equipment of the Agriculture and Household Science departments. In Appendices B and C are given lists of the different items.

I. For the Courses in Agriculture

Library.—The standard text-books in the subjects of the school courses. Suitable agricultural papers and magazines and the reports and bulletins published by the Dominion and Ontario Departments of Agriculture.

Charts and Lantern Slides.—A special projection lantern and screen or the use of the school equipment. Suitable charts and lantern slides, illustrating breeds of cattle, economic plants and insects, farm building construction, etc.

Farm and Garden Work.—A supply of garden tools, wheel-hoes, lines, stakes and labels for the work in the experimental plots at school; a hot bed and cold frame.

Chemistry.—The same laboratory equipment as is used by the general classes.

Physics.—Farm level, levelling rod, surveyor's chain and arrows, soil tubes and trays, set of levers, pulleys, and weights; rain gauge, barometer, maximum and minimum thermometers.

Botany, Entomology, and Bacteriology.—In addition to the microscopes, etc., used by the general classes, a supply of special lenses for seed work.

Horticulture.—Models of apple boxes and barrels, press for packing apples; samples of tools used in pruning and grafting, small hand-spraying outfit; samples of garden tools.

Beekeeping.—Models of standard bee hives, frames and bee-keeper's accessories; supply of smokers and veils for use of class in visiting apiary.

Poultry Husbandry.—Models of standard hen houses, portable colony house, trap nest, feed box, fattening crate, incubator and brooder.

Field Husbandry.—Scales, grain tester, set of grain measures, germinating boxes for seed tests, set of sieves.

Dairy Husbandry.—Samples of sanitary milk pails, creamer cans, cream pails, dairy thermometer, lactometer, barrel churn, butter worker, buttermilk strainer, butter mould, shipping box; a cow testing outfit, consisting of Babcock milk tester, straight spring scale, sample dipper, sample bottles; model of dairy barns to be made by pupils; a cream separator for demonstration purposes.

Animal Husbandry.—Models of horse and cattle barns, sheep pens, pig pens, feeding racks, etc.

When the necessary tools are available, some of the models should be made by the pupils themselves at home as well as at school.

Farm Mechanics.—One single work bench for every pupil or a double bench for every two, with the tools necessary for wood and iron work and the equipment for mechanical drawing. One lathe would be a useful addition.

A space should be left between the benches to allow free passage to both pupils and teachers, and the minimum space between the back of one bench and the front of another should be three feet or at least thirty inches.

One hand forge with the necessary tools for each ten pupils. The forges may be set in one corner of the room, if the floor is of concrete or is properly protected from fire by sheet iron.

In addition to the equipment above prescribed, various other appliances should be gradually accumulated, such as ropes for practice in knotting and splicing, electrical appliances, gas engine, belts for practice in lacing, soldering outfit, materials for concrete work, models of farm buildings and appliances, materials for fence building, specimens of farm machinery, etc.

II. For the Courses in Household Science

Cooking, Sanitation and Hygiene.—Tables, stoves, and utensils sufficient for the instruction of ten girls at a time.

The working tables should be fitted with drawers and shelves or cupboards. If gas is not used and if water on pressure is not available, these tables may be movable. Seats should be provided.

At least one cooking range is necessary—gas, coal, or wood according to local conditions. In addition there should be provided a gas ring or a small oil stove for every two girls taking the course. A fireless cooker is a useful addition.

Two sinks should be provided with hot and cold water and if plumbing is not available, special provision must be made for carrying off the waste water.

Hand and Machine Sewing.—Two sewing machines, with sewing and drafting tables sufficient for the instruction of ten girls at a time; for fewer than ten girls, one machine will be sufficient.

Library.—Every Household Science department should be furnished with a reference library. A list of suitable books will be found in Appendix C and in the Reference Catalogue, issued by the Department of Education. Two or three of the best housekeeping magazines should be taken and the reading of the pupils should in all cases be directed. If a dining-room is provided it may be used as a reading-room also when not required for table service. A school scrap book will be of service for keeping recipes and newspaper and other cuttings.

III. Removal of Equipment

6. If courses in the Agricultural or the Household Science Department are not taken up in the school for two successive years after the cost of the equipment provided therefor has been fully met by the Government grants, the Minister may transfer it to another school.

QUALIFICATIONS OF STAFFS

I. For the Agricultural Department

7. (1) For the courses in the Agricultural subjects of the Agricultural Department, the qualifications of the staff shall be as follows:

(*a*) (i) A Specialist's certificate in Agriculture and Science; or—

(ii) The degree of B.S.A., with a High School Assistant's or First Class certificate; or—

(iii) An Ordinary certificate in Agriculture, with a First Class certificate or a High School Assistant's, held by a teacher who passed the Faculty Entrance examination with the Science option or with examinations in Science equivalent to those in the option.

The holders of the certificates prescribed above shall be male teachers.

(*b*) A certificate in Farm Mechanics held by any male teacher on the staff.

(*c*) For special courses in the Agricultural subjects, approved by the Minister, the qualification of a District Representative of the Department of Agriculture or of a farmer who has been successful in some branch of farming.

(2) For the courses in the academic subjects of the Agricultural Department, a teacher holding the qualifications prescribed in (*a*) above, or any other member or members of the staff approved by the Minister on the report of the High or Continuation School Inspector.

8. (1) Until teachers with the qualifications prescribed in Regulation 7 (1) (*a*) above are available, the Minister will accept the following as qualifications for the work in the Agricultural subjects of the Agricultural Department:

(*a*) The degree of B.S.A., with a Second Class certificate.

(*b*) An Intermediate certificate in Agriculture.

(*c*) A certificate of having completed the first course for an Intermediate certificate, with an undertaking by the holder thereof to complete the second course in the following year.

(2) Until teachers of Farm Mechanics with the qualifications prescribed in Regulation 7 (1) (*b*) above are available, the Minister will accept the qualifications of a mechanical expert approved by the Director or Inspector, or the course may be omitted.

(3) When a teacher qualified under (1) (*a*) or (2) above is employed, the academic subjects of the course shall be taken by any other member or members of the staff approved by the Minister on the report of the High or Continuation School Inspector.

1.—A special Summer course and examination will be provided at the Ontario Agricultural College, Guelph, for candidates for certificates as teachers of Farm Mechanics. In the meantime, as is provided in 8 (2) above, this qualification is not obligatory.

2.—The intermediate certificate in Agriculture may be obtained by a male teacher whose academic course has qualified him to teach Science in a High or Continuation School, after attending for two Summer sessions at the Ontario Agricultural College and having passed the Final examination in both courses.

II. For the Household Science Department

9. (1) For the courses in the Household Science subjects of the Household Science Department, the qualifications of the staff shall be as follows:

(*a*) (i) A Specialist's certificate in Household Science; or—

(ii) An Ordinary certificate in Household Science, with a High School Assistant's or a First Class certificate.

The holders of the certificates prescribed in (*a*) above shall be female teachers.

(*b*) For the course in the Agricultural subjects of the Household Science Department when taken by the teacher of Household Science, a Special certificate in said subjects.

(2) For the courses in the academic subjects of the Household Science Department, the qualifications prescribed in (*a*) above or those of any other member or members of the staff approved by the Minister on the report of the High or Continuation School Inspector.

10. (1) Until teachers with the qualifications prescribed in 9 (1) (*a*) above are available, the Minister will accept for the work in the Household Science subjects of the Household Science Department an Ordinary certificate in Household Science held by a female teacher with a Second Class certificate.

(2) When a teacher so qualified is employed, the academic subjects of the course shall be taken by any other member or members of the staff approved by the Minister on the report of the High or Continuation School Inspector.

NOTES: 1.—A Specialist's certificate in Household Science may be obtained by graduates in Arts of the University of Toronto in the course in the Department of Household Science approved by the Minister, who pass the prescribed final examination for said certificate after one year's attendance at the Faculty of Education at Toronto.

2.—The Ordinary certificate in Household Science prescribed above may hereafter be obtained after one year's attendance at the Household Science Department, College of Education, Toronto, by a candidate who passes the final examination prescribed therefor, and after two years' attendance at the Macdonald Institute, Guelph,

3.—The special certificate for the agricultural subjects of the Household Science Department may be obtained after a Summer session at the Ontario Agricultural College by the holder of the Specialist's or Ordinary certificate in Household Science prescribed above.

ADMISSION OF PUPILS

11. (1) Pupils duly admitted under the provisions of the High Schools Act to a Day High School may be admitted to the Agricultural or Household Science Department of a High or Continuation School.

(2) Subject to the following conditions, candidates who do not hold a Day High School Entrance certificate may be admitted to the Agricultural or Household Science department of a High or Continuation School on the recommendation of the Public School Inspector and the Principal, after due investigation and examination:

(*a*) That they are at least fourteen years of age when admitted to the department.

(*b*) That they are at least of the standing of Form IV of the Public and Separate Schools and are able to take up the courses of the department selected.

(*c*) That the conditions of the Public and Separate Schools of the locality justify their admission.

(*d*) That the recommendations of the Public School Inspector and the Principal, with the reasons therefor, have been submitted to the Minister for his approval before the pupils so recommended are admitted.

INSTRUCTIONS: 1.—The provision in (2) above is intended for those pupils who are over the usual age of the High School entrant, who have left the Public or the Separate School, or who, owing to local conditions, would probably not continue the courses therein. The provision is intended to apply chiefly to applicants from the rural districts. In view of the opportunities offered by the better organization of the schools in the urban municipalities, applications from them should be given favourable consideration only in exceptional cases.

2.—Such applicants for admission should present themselves at the High or Continuation School which they desire to attend, on a date to be fixed from time to time by the Public School Inspector and the Principal.

DAILY SESSIONS, DUTIES OF TEACHERS AND PUPILS

12. (1) The Agricultural subjects and the Home projects in Agriculture of both departments may be under the charge of the teacher of the Agricultural department.

(2) Except as modified by the regulations prescribed herein for the conduct of the Agricultural and Household Science departments, the regulations prescribing the daily sessions and the duties of the teachers and pupils shall be the same as those prescribed for the pupils of Day High and Continuation Schools.

COURSES OF STUDY

Classification

13. The Syllabus below provides for the courses in the departments of Agriculture and Household Science. At present they cover only two years; a third year course will be added as soon as required.

(1) The subjects in the courses for each year in each department are grouped as follows:

Group I.—The Academic subjects which form the ground work of a general education, the content of each of which, with the exception of some agricultural and household science applications, is the same as that of the corresponding subjects of the course for the Lower School of the High and Continuation Schools.

Group II.—The special Agricultural subjects.

Group III.—The special Household Science subjects.

(2) With the approval of the Minister, obtained before the modification is made, other subjects may be added to or substituted for those prescribed in Groups II and III, or the content of the courses in the subjects of these groups may be altered, according to the character of the farming in the community.

(3) The Religious exercises and instruction and the regulations prescribed therefor of the Agricultural and Household Science departments shall be the same as those prescribed for the other departments of High and Continuation Schools.

Limitations

14. (1) Not all the subjects in the Groups of either department should be taken up concurrently. Some of the subjects are short course subjects and should be taken up to suit conditions; and, generally, from time to time, the Principal should intermit the study of suitable subjects or topics or he may lessen the intensity thereof.

(2) (*a*) The minimum apportionment of time for Reading and Physical Culture shall be the same as that for the other departments of the High or Continuation School.

(*b*) In the Agricultural and Household Science departments, the following or the equivalent thereof, shall be the minimum apportionment of time per week for the special subjects:

(i) For Agriculture, two afternoons for the first year; three for the second; for Farm Mechanics, one afternoon for each year.

(ii) For Household Science, two afternoons for the first year; three for the second; for the Agricultural subjects of the Household Science department, one afternoon for each year.

(*c*) The necessary provision should be made for field work in the Agricultural subjects of both departments, subject to the approval of the Director of Elementary Agricultural Education.

Selection

15. (1) Subject to the provisions of the foregoing Regulations, the Advisory Agricultural Committee may select either or both of the Agricultural and Household Science departments; but a department shall not be established or maintained if on the report of the Director or Inspector concerned the Minister decides that the staff, the accommodation, the equipment, or the organization is inadequate or unsuitable therefor.

(2) (*a*) Pupils may be admitted to one of the departments on the application of the parent or guardian, who shall state, where practicable, the occupation in life for which he wishes him to be prepared. Of this statement a record shall be kept by the Principal.

(*b*) Each pupil shall take all the subjects prescribed for the department selected, but the Principal may omit or curtail the courses in any of the subjects in the case of individual pupils whose circumstances in his judgment necessitate such consideration.

(*c*) For duly qualified applicants who may be unable to attend for more than the winter months or for the whole of the daily session, the Principal may, if he deems it expedient, provide special classes in some or all of the subjects of Group I, and he may so organize the topics of the subjects of Groups II and III, as to afford them instruction in the subjects that are of most importance to them. The object of the establishment of these departments is to improve rural conditions and, having regard to the general welfare of the school, due consideration should be given to special cases.

Acceptance by the Ontario Agricultural College

16. Pupils who take the two years' Course of the Agricultural department herein provided for, and whose competency is attested by the principal of the school and the teacher of agriculture, shall be eligible for entrance to the second year work of the Ontario Agricultural College.

GENERAL SYLLABUS

17. Subject to the provisions of Regulation 13 (2) and to any instructions that may be issued from time to time by the Minister, the General Syllabus of the courses for the departments of Agriculture and Household Science are as set forth below:

Group I

AGRICULTURAL AND HOUSEHOLD SCIENCE DEPARTMENTS

ACADEMIC SUBJECTS

FIRST AND SECOND YEARS

NOTE.—In Group I, the instructions in regard to the pedagogy of the courses and the detailed topics of study of the courses are the same as those prescribed for the corresponding courses of the General Syllabus and the Appendices of the High and Continuation Schools, except where special provision has been made for the Agricultural and Household Science Courses.

Manners and Morals.—Incidental instruction from current events, from the lessons in literature, history, etc., by his selection of the supplementary reading, and by his own example as well as by precept, the teacher shall give instruction in moral principles and practices and in good manners.

Spelling and Writing.—If the spelling and the writing of the compositions and other written exercises are constantly supervised, and the pupils have been properly prepared in the Public and Separate Schools, special provisions for these subjects should be unnecessary.

Physical Culture.—Exercises to secure the symmetrical development of the body, securing at the same time strength and grace with correct and prompt obedience to the will.

Exercises in Drill and Calisthenics, both free and with apparatus, and in Gymnastics.

Where a Cadet Corps is maintained the courses therefor shall be given in accordance with the Regulations of the Department of Militia and Defence, Ottawa. See Departmental Circular: INSTRUCTIONS No. 10.

English Composition.—Oral and written composition.

Elements of Narration, Description, Exposition, and Argumentation.

Letter writing.

Oral and written reproductions or abstracts.

Class debates.

The systematic and careful application of the principles of good English to the correction of the mistakes made by the pupils in speaking and writing.

English Literature.—Intelligent comprehension of prescribed authors.
Supplementary reading, both prose and poetry.
Systematic oral reading in class.
Memorization and recitation of choice selections in prose and poetry selected by the teacher.

FIRST YEAR

Reading.—Intelligent and intelligible natural reading; the principles to be learned incidentally.
Exercises in breathing, articulation, and vocalization.

English Grammar.—A thorough review of the course prescribed for Form IV of the Public and Separate Schools, with emphasis on the practical applications.

Geography.—The following countries with reference to their principal resources, industries, and productions; the commercial relations and routes of travel and commerce; the centres of population; the condition of the people; and their forms of Government.

(1) The United States, Mexico, Central America, the Lowland and Andean States of South America, the Baltic States, the Mediterranean States, the Danubian and Balkan States, the Russian Empire, China and Japan, Africa and Oceania.

(2) The United Kingdom; Canada and Ontario, and the other most important parts of the British Empire.
Outline map drawing in connection with the study of the above countries.
The countries in (1) to be studied in outline; those in (2), in greater detail.
Special attention to such phases of the subject as the relation between crop specialization and climate and markets; the export and import, and the costs, methods, and routes of transportation of agricultural products.

History.—A brief outline of Canadian History to 1840 and a more extended outline to the present time.
Supplementary reading and interesting biographical sketches of persons famous in British, Canadian, Greek, and Roman History.
Great events of current history.
The elements of the civil government of Canada and Ontario.
The duties of citizenship.
Special attention to such phases of the subject as the history of the settlement and the development of the neighbourhood; the development of modern agricultural machinery; the changes in agricultural practices, locally and elsewhere; immigration and its relation to agricultural conditions at home and in Europe and the United States.

Arithmetic.—The simpler parts of both the theory and the practice of the following course:

Review of principles; measures and multiples; fractions (vulgar and decimal); contracted methods of computation; compound quantities, including the metric system; square root; commercial arithmetic; applications of percentage; commission, insurance, taxes, interest, bank discount, stocks, and exchange; the use of the common business forms.
Oral arithmetic.
The rectangle, triangle, circle, parallelopiped, prism, cylinder.
Emphasis on the Agricultural and Household Science applications.

Book-keeping.—Single Entry: Day book, cash book, bill book, and ledger, such accounts as are used by housekeepers and farmers.

Elementary Science.—An elementary seasonal practical course in Zoology, Botany, and Physics, as set forth in the Appendices to the High and Continuation School Courses of Study, with Agricultural and Household Science applications, where practicable.

SECOND YEAR

Geography.—Changes of the earth's surface; rocks; rivers, valleys, and lakes; weathering, soils, and underground waters; wind work; glaciers and their work; plains, mountains, and plateaus; volcanoes and earthquakes.

The atmosphere; winds, storms, and climate.

The earth's magnetism.

The ocean; the meeting of land and sea.

Life on the earth; geological history of Canada.

The earth and the sun; the solar system; other heavenly bodies.

Special attention to the agricultural phases of the subject continued.

History.—A very brief outline of British History to the Tudor period, a brief outline to 1685, and a more extended outline from 1685 to the present time.

Supplementary reading and biographical sketches of persons famous in British and Canadian History and in Greek and Roman History.

The great events of current history.

The duties of citizenship.

Special attention to the agricultural and social phases of the subject continued.

Elementary Science.—The course of the first year in Botany, Zoology and Physics continued, with an introductory practical course in Chemistry, as set forth in the Appendices to the High and Continuation School Courses of Study.

Group II

AGRICULTURAL SUBJECTS

FIRST YEAR

Farm Mechanics: Drawing.—Simple plans and elevations applied to the erection of farm buildings. Correct use of drawing board, T-square, triangle and compasses. Construction of the common geometrical figures. Simple lettering and figuring. Working drawings for use at the bench or in the construction of dwellings, barns, granaries, silos, poultry houses, and machine sheds and cupboards, cases, and other indoor structures.

Wood Work.—Growth, structure, identification and characteristics of the woods used in the locality; methods of seasoning. Warping, twisting, checking; how caused and counteracted. Making of simple objects required on the farm or in the home according to drawings previously prepared. Proper use of nails, screws, and glue. Use of simple joints in articles made; for example, end half lap, centre half lap, mitre, housing. Use, mechanical construction, and care of common woodworking tools, such as may be used on a farm.

A record of every piece of work shall be kept for inspection.

MISCELLANEOUS FARM WORK.—Repairing harness, making gates and fences, painting and whitewashing; mending windows, soldering, making concrete posts, building pens and fences, splicing and tying ropes, mixing and applying paints, assembling machines, etc.

Science: CHEMISTRY.—Simple studies of plant substances such as determination of moisture, carbon, ash, starch and gluten; simple studies of soils, insecticides, fungicides and common substances used on the farm.

PHYSICS.—Measurements of fields and surveys for drainage; needs, values and methods of drainage. Simple physical analyses of different classes of soils; comparisons by weight; determination of air and water capacities; capillarity; effects of frost, lime, and humus on clay.

BOTANY.—Field studies of weeds; habits of growth and weed distribution; methods of eradication. Determination of weed seed impurities in clover seed; germination tests of farm and garden seeds; Seed Control Act. Study of flowers of fruit trees, the setting and development of fruit; natural and artificial fertilization. Flowers and seed development of forest and shade trees. Study of economic plants such as grasses, ornamental shrubbery, garden flowers.

ENTOMOLOGY.—Recognition, life histories, work and remedies of insects injurious to orchard and garden; spraying mixtures and application; other remedies.

Horticulture.—FRUIT GROWING.—Fall management of orchards, pruning and cultivation, methods and systems of fruit packing; work of co-operative fruit associations; laws relating to fruit marking; propagation of apple trees by root-grafting. Small fruit culture; methods of growing strawberries, raspberries, currants, grapes, etc.

FLORICULTURE.—Bulbs—outdoor growing and forcing for winter bloom; growing flowers in home gardens.

LANDSCAPE GARDENING.—Beautifying home surroundings; plans for home gardens; care of growing plants.

VEGETABLE GARDENING.—Preparation, care and uses of hot bed and cold frame; methods of growing potatoes, onions, rhubarb, lettuce, cabbage, tomatoes, etc., for early crops. Preparation of soil for gardening; selection of varieties; planting tables.

Beekeeping.—Fall and winter management of bees; colony studies to learn organization, life histories and work of bees; construction of hives; methods of handling.

Poultry Husbandry.—Breeds; housing, feeding and management of poultry in winter; fattening and marketing. Incubation, brooding and rearing of chicks; management of poultry in summer.

Field Husbandry.—Crop improvement; selection of choicest seed of grains, vegetables, or flowers for next year's growing; work of Canadian Seed Growers' Association.

Dairy Husbandry.—Milk testing with Babcock tester; care of milk and pasteurization; use of lactometer; individual cow records and herd improvement; care of dairy herd; construction of dairy stables.

Arithmetic.—The applications of Arithmetic, when necessary, to calculations in all the courses.

SECOND YEAR

Farm Mechanics: DRAWING.—Elementary orthographic and isometric projection applied to farm buildings. Simple sections. Freehand dimensioned sketches. Inking, tracing, lettering, and blue printing. Working drawings of objects made.

WOOD WORK.—Growth, structure, seasoning, and identification of the woods used in the locality. Tool sharpening. Common joints used in various kinds of farm wood work—scarfing, mortise and tenon, tongue and grooved joint—their use in making objects such as gates, fences, nest boxes, and other articles needed on the farm. Fastenings with dowels, pins, cleats, wedges, etc. Calculations from drawings and specifications of the amount of lumber required for articles made, and cost.

A record shall be kept of every piece of work.

FORGING.—The forge, the fire, the heat, the height of anvil, and its position. The ordinary tools, how to use and care for them. Hammer, sledge, chisel, fuller, and swage. Drawing, forming, upsetting, bending, and twisting iron, stamping and forge-blacking the finished piece. How to fashion from iron stock various articles used on the farm, such as tongs, cold chisels, punches, rings, chain links, brackets, harrow teeth, etc.; how to use and take care of files; how to construct a serviceable forge, and otherwise equip a shop for farm blacksmithing; repairing broken parts of farm machinery; the nature of the structure of iron and steel, and the processes by which each is produced; welding, tempering.

A record shall be kept of every piece of work.

MISCELLANEOUS FARM WORK.—Such as repairing machines, sharpening farm implements, making forms and laying concrete walks and foundations, building barns, laying drains, etc.

Science: CHEMISTRY.—Uses of manures and fertilizers; examination, identification and simple tests for common commercial fertilizers; calculation of values and proportions in which they should be mixed.

PHYSICS.—Principles of farm machines or appliances; simple experiments with pulleys, levers, etc.

BOTANY.—First year's work continued with study of common plant diseases and treatment for them.

BACTERIOLOGY.—Moulds and bacteria in relation to canning and preserving; methods of canning. Work of bacteria in soil; legume bacteria.

ENTOMOLOGY.—First year's work continued.

Horticulture: FRUIT GROWING.—Storing fruits for winter. Selection of location and planting plans for orchards; varieties suited to local planting; orchard management and care; methods of pruning and grafting; methods of budding and propagation by cuttings.

FLORICULTURE.—Storing and care of house plants in winter; preparation for winter of tender climbing plants, shrubs and flowers; lifting, dividing and replanting perennials.

VEGETABLE GARDENING.—Storing vegetables for winter; methods of winter forcing of rhubarb, Swiss chard, etc.; preparations and seeding for early spring crops.

Beekeeping.—First year's work continued.

Field Husbandry.—Crops best suited to the locality and best varieties of grains; methods of crop improvement; systems of rotations and values. Methods of soil cultivation; best times and methods of seeding.

Dairy Husbandry.—Simple analysis of milk to show albumin, casein and sugar; composition and value of whey and buttermilk; experiments to show effects of mould or bacterial contamination; construction, care and advantages of cream separator; manufacture of butter and cheese; dairy manufacturing; visit to creamery or evaporator.

Animal Husbandry.—Breeds of cows, horses, sheep and swine; practice in using score cards; judging age of horses by teeth; care and management of farm animals; construction of stables; of visits to local farms to inspect stable equipment, to study the methods of feeding and management, and to get practice in judging.

Farm Management.—Kinds of farming and the best kind for the neighbourhood; plans for model farms. Care of machinery, costs of manuring, soil preparation, seeding, harvesting, threshing and marketing.

Rural Economics.—Laws relating to agriculture; organizations for advancing agriculture; co-operative associations; value of good roads; rural advancement, etc.

Experimental School Plots.—Plots for experiments and demonstrations of the following character may be conducted on the school grounds:

(1) Community tests of the different varieties of oats, potatoes, etc., grown by the farmers of the neighbourhood.

(2) Tests of recommended varieties of grains, or other field crops secured from the Provincial or Dominion Experimental Farms.

(3) Variety tests of garden vegetables, such as are grown commonly in the neighbourhood.

(4) The growing of stocks of shrubbery, shade-trees, and fruit trees for use on the school grounds or for distribution in the neighbourhood.

(5) Tests of different methods of cultivation of such crops as potatoes, tomatoes, strawberries.

(6) Tests of different fertilizers on special crops, such as oats, potatoes, onions, lettuce.

(7) Where a large enough area can be secured the growing of registered seed under the direction and supervision of the Canadian Seed Growers' Association for the improvement of seed used on local farms.

INSTRUCTIONS: 1.—The successful operation of experimental plots is largely dependent on the teacher's having time for their supervision and on the support of public opinion. Moreover, it is necessary to secure the efficient operation of the instructional and home-project sides of the course before undertaking this branch of the work.

2.—The care of the experimental plots during the Summer holidays should not be allowed to degenerate into a caretaker's job. Where the work is organized in the proper spirit, the pupils will continue their charge of the plots. If such arrangements cannot be made, it will be best to put the work into the charge of a few specially instructed pupils, who may be allowed a fee for their work. If the teacher is absent during the holidays, a member of the Advisory Committee might be deputed to oversee the work.

3.—The kind of work carried out on the plots will vary with the special interests of the farming communities surrounding the school. They are intended not for individual experiments, but for a co-operative enterprise of the pupils, for experiments and demonstrations of direct interest and value to the community at large.

FIRST AND SECOND YEARS

Home Projects.—The following is a list of suggested home projects for the First and Second years:

GARDENING.—(1) To take charge of the home vegetable garden or part of it.

(2) To establish, improve, or care for home lawns.

(3) To grow for canning one or more vegetables, such as tomatoes, beets, corn, beans.

(4) To grow one flower and one vegetable in a pupils' competition.

(5) To set out and care for a strawberry, raspberry, or asparagus bed.

(6) To set out and care for a row of currants or gooseberries.

(7) To establish a perennial flower border.

(8) To set out and train climbing rose, Boston ivy, or other climbers.

(9) To test two varieties of a vegetable, such as arranged for by the Schools Division of the Experimental Union.

(10) To grow new kinds of vegetables.

(11) To improve the back yard with grass plots, flower borders, and climbers on the fences.

(12) To establish a wild flower garden at home.

FRUIT GROWING, NURSERY WORK, ETC.—(1) To renovate an old orchard, or part of it.

(2) To set out and care for one or more fruit trees or grapevines.

(3) To care for one or more trees by pruning, scraping, spraying, and cultivating.

(4) To experiment on thinning out fruit on heavily bearing tree.

(5) To produce one's own fruit trees by raising seedlings and grafting on roots or budding.

(6) To propagate currants, gooseberries and grape vines from cuttings.

(7) To raise shade trees from seeds or nuts, e.g., horse-chestnuts, oaks, hickories, walnuts, maples, elms.

(8) To propagate ornamental shrubbery, such as privet, bush hydrangea, roses, etc., from cuttings.

(9) To buy ornamental shrubbery of one-year stock and care for it on nursery lines until large enough to set out.

(10) To get young evergreen and other tree seedlings from the woods and to prepare them on nursery lines for home planting.

(11) To get a colony of bees and learn to handle it.

PRODUCTION OF FIELD CROPS, HOME GROWN SEED, ETC.—(1) To compare thick and thin seeding of some common field crop.

(2) To compare results from different dates of seeding.

(3) To compare yields from same weights of large and small seed.

(4) To compare yields resulting with different depths or different number of times of cultivation, say of corn.

(5) To compare yields resulting from uses of different mixtures of commercial fertilizers.

(6) To produce one's own mangel, turnip, or carrot seed.

(7) To test and introduce a new variety of grain, alfalfa, clover, potato or other crop, such as recommended by the experimental stations.

(8) To enter local competition in obtaining the best yields from one-tenth acre of corn, potatoes, turnips, etc.

LIVESTOCK IMPROVEMENT.—(1) To secure eggs of some improved strain of poultry (e.g., O.A.C. Barred Rocks) and build up a pure flock.

(2) To make individual milk tests for the home dairy herd in order to find out which cows are most valuable.

(3) To undertake a feeding experiment in the production of "baby beef" or bacon hogs, as arranged by the District Agricultural Representative for the members of his Young Farmers' Improvement Club.

(4) To establish and care for or to improve a flock of sheep.

(6) To establish and care for an apiary.

CROP IMPROVEMENT.—(1) Having joined the Canadian Seed Growers' Association, to commence practical seed selection and improvement.

(2) To enter one of the Field Crop Competitions organized by the Ontario Department of Agriculture.

(3) To undertake one of the experiments offered by the Experimental Union, comparing approved varieties of oats, barley, potatoes, etc.

(4) To commence the selection of the best hills of potatoes, best head of corn, best heads of oats, and grow crops from these.

(5) To purchase, plant, and care for choice seed from a leading seed grower for comparing with home-grown seed.

FARM MANAGEMENT AND IMPROVEMENT.—(1) To make a complete valuation of the farm and all its equipment, buildings, fences, drains, machinery, livestock, feed, fields and orchards.

(2) To estimate the cost of producing the different crops grown, keeping accounts for each field.

(3) To estimate the cost of raising pigs, chickens, cattle, sheep or horses.

(4) To estimate the cost of producing milk and butter.

(5) To carry out a system of book-keeping for the farm for a year.

(6) To make a drainage survey of the farm with map showing location of old drains and new drains required.

(7) To test a scheme of cultivation for the eradication of weed pests in a field.

(8) To use split-log drag for improvement of roads about and on the farm.

(9) To make a survey of the home woods, estimating the amount of mature or spoiling wood available for lumber or firewood and making plans for restoration or improvement.

(10) To conduct an experiment to find the results of following a system of rotation.

FARM MECHANICS.—(1) To make articles required on the farm or in the home, e.g., wood-box, book-shelf, milk-stool, saw-horse, poultry feed boxes, butter worker.

(2) To put down cement sidewalks about the home; making cement fence posts, water troughs, etc.

(3) To use the farmer's hand forge and to learn to make simple repairs.

(4) To build, repair, and readjust farm gates.

(5) To repair barns and sheds, replacing broken windows, floors, partitions, steps, etc.

(6) To plan, make out bill for material, purchase, and build new poultry house, pig pen or shed.

(7) To build in new ventilators in stables.

INSTRUCTIONS: 1.—The Home-projects should be carefully supervised by the teacher. Before the practical work is commenced, the teacher should see that the pupil has a clear idea

of the purpose of the undertaking and of how to carry it on. This will necessitate personal discussion of the project as well as directed reading. For the discussion of the projects, a portion of the time in the classroom should be used, and if common projects are being undertaken by groups of the pupils, this will facilitate the settlement of plans. If individual pupils wish to undertake special projects, the teacher will have to arrange to discuss the plans after school. After the preliminary discussion the pupil should set forth the project in writing for the teacher's criticism.

2.—In most cases pupils should be required to undertake the care of a home garden of fair size. In this, besides carrying on the work of beautifying the home and providing vegetables and fruit for the home table, some experimental work, such as is indicated above, should be carried on. When experimental work involves as much labour as care of the garden, the gardening may be omitted. In the case of inexperienced pupils, the project of general gardening would be satisfactory for the first year.

3.—It is part of the teacher's duty to visit the pupils' homes at least twice during the season, and, for this service, a special payment is made to him. The first visit should take place shortly after the work has commenced in April, May, or June, and the second towards the close of the project in September, October, or November. On these visits, the teacher of Agriculture might be accompanied by interested members of the School Board, or of the local Horticultural and Agricultural Societies; and in case the teacher is unable to visit all the projects as the plans propose, he should arrange for committees of such men or of local farmers to take a share of the work. The pupils who live close together should be encouraged to visit one another's projects and, where the undertaking admits of it, to co-operate in carrying them out.

4.—The projects undertaken by pupils who board and are not at home except at week-ends or holidays should be especially selected so that they may be carried on readily during the pupil's absence by some of the other members of his family.

5.—The supervision of the practical work at the pupils' homes will have to be carried on after school or on Saturdays, and the teacher should arrange his visits so that he will meet not only the pupil, but, if possible, his parents also.

Arithmetic.—The applications of Arithmetic, when necessary, to calculations in the courses of the First and Second years.

Group III

HOUSEHOLD SCIENCE SUBJECTS

FIRST YEAR

Art.—An elementary course in the following, as set forth in the seasonal course in the appendices to the High and Continuation School Courses of Study:

Mediums: lead pencil, and brush with ink and water colours.

Drawing simple type solids in outline and in light and shade, singly and in groups of two or three.

Freehand perspective as applied to object drawing.

Study of colour: the standard colours, hues of colour, neutralization of colour, scale of tones, with direct application to household decoration and colour schemes for clothing.

Drawing and painting from the object or from memory: (*a*) natural forms, such as grasses, fruits, flowers, leaves, sprays, trees, birds, insects, etc.; (*b*) manufactured objects of simple form, such as boxes, cans, bottles, lanterns, tents, tools, books, furniture, crockery, etc.; (*c*) figure drawing: poses to illustrate ordinary scenes, such as skipping, fishing, playing ball, etc.; (*d*) illustrations (in outline or in silhouette) of school compositions, literature, history or other school work; (*e*) simple landscape, representing phases of the day, and the season, with few details.

Composition and space filling, including ornamental design and the principles of design.

Original designs for such objects as calendars, festival cards, book covers, menus, sofa cushions, etc., in neutral tones and in colour, based upon (*a*) geometric forms, (*b*) conventionalized natural forms.

Picture study.

Agricultural Subjects: BEEKEEPING.—Fall and winter management of bees; colony studies to learn organization, life histories and work of bees; construction of hives; methods of handling.

POULTRY HUSBANDRY.—Breeds; housing, feeding, and management of poultry in winter; fattening and marketing; incubation, brooding, and rearing of chicks; management of poultry in summer.

DAIRY HUSBANDRY.—Milk testing with Babcock tester; care of milk and pasteurization; use of lactometer; individual cow records and herd improvement; care of dairy herd; construction of dairy stables.

HORTICULTURE: FRUIT GROWING.—Fall management of orchards, pruning and cultivation, methods and systems of fruit packing; work of co-operative fruit associations; laws relating to fruit marking; propagation of apple trees by root-grafting. Small fruit culture; methods of growing strawberries, raspberries, currants, grapes, etc.

FLORICULTURE: Bulbs.—Outdoor growing and forcing for winter bloom; growing flowers in home garden.

LANDSCAPE GARDENING: Beautifying home surroundings; plans for home gardens; care of growing plants.

VEGETABLE GARDENING: Preparation, care and uses of hot bed and cold frame; methods of growing potatoes, onions, rhubarb, lettuce, cabbage, tomatoes, etc., for early crop. Preparation of soil for gardening; selection of varieties; planting tables.

ENTOMOLOGY.—Recognition, life histories, work of insects injurious to orchard and farm; spraying mixtures and their application; other remedies.

Household Science: CLEANING.—Best methods of cleaning dishes, dish-towels, sinks, wooden surfaces, steel, nickel, silver, aluminum, tin, brass, dairy and home appliances.

COOKERY.—Construction and care of a practical stove.
Practice in cooking milk, eggs, meat or fish, fruit, vegetables, cereals.
Principles involved in flour mixtures.
Principles involved in the preservation of food.

FOODS.—Food elements in milk, eggs, meat or fish, fruit, vegetables, seeds.
Planning simple home meals.

THE HOUSE.—Site; Soil, sun, exposure, environment.
Plan: Building material, number, size, and relative position of rooms.
Lighting: Candles, coal-oil, gas, electricity, considered from standpoints of lighting-power, heat, vitiation of air, care and cost.
Heating: Fire-places, stoves, hot-air and hot-water furnaces considered and compared.
Ventilating: Sources of house-air impurities, purposes and principles of ventilation, simple home methods.
Sanitation: Principles involved in the sanitary care of the house and premises.
Water-supply: Simple plans with cost for installing water under pressure for domestic purposes in the farmhouse.
Furnishing: Material, form, colour, care required when in use.

LAUNDRY WORK.—Water, alkalies, soap, blueing, starch, and the action of each.

Processes in the washing of white clothes, coloured clothes, woollens.

INSTRUCTION.—Each school should be provided with a laundry. Until this is done the order of the work may be developed in the class and the practice carried on at home.

SEWING: Household Linen. Making towels, hemming table linen. Darning and mending. Instruction in the use of simple patterns.

Simple and advanced stitches applied to small clothing and household articles.

SECOND YEAR

Art.—The following subjects, as set forth in the seasonal course in the appendices to the High and Continuation School Courses of Study.

Mediums: lead pencil; and brush with ink and water colours. Crayons, coloured chalks, and charcoal (optional).

Drawing pottery in light and shade, singly and in groups, with background and cast shadows.

The principles of perspective and their application to drawing of objects and interiors.

Colour and its harmonies and tone relations with special reference to house decoration and colour schemes for clothing.

Drawing and painting from the object or from memory: (*a*) common objects, (*b*) specimens from nature, (*c*) figures posed in small groups to illustrate ordinary scenes, (*d*) landscape subjects.

The principles of composition as applied to pictures and ornamental design.

Composition and space filling including design and the principles of design.

Original designs in neutral tones and in colour, for such objects as wall paper, friezes, curtain borders, floor coverings, portfolio covers, initial letters, etc.; designs for stencils.

Drawing from casts (optional).

Picture study continued.

Household Science: COOKERY.—Review of the First Year course and its extension to more advanced cookery, the dishes being chosen according to the demands of the home life of the pupils.

The preparation of complete meals.

MARKETING.—Seasons for domestic and well-known imported foods.

Current prices of food, with practice in buying. Methods of storage.

Visiting markets and shops, the pupils being given the responsibility of buying home and school supplies.

ENTERTAINING.—Writing invitations and replies.

Planning and preparing for guests.

Duties of hostess and guests.

Additional practice in entertaining at home.

SEWING.—Advanced stitches applied to small garments.

Hemmed patch, fine mending.

Instruction in the use of patterns continued.

Cutting out and making simple clothing.

Threading, running, oiling and cleaning of sewing machines; use of attachments.

HOUSEHOLD ACCOUNTS.—Systematic spending of the income.

Keeping account of household expenses.

HOME NURSING AND EMERGENCIES.—The sick-room: Location, size, ventilation, and care.

Care of the patient's bed, bath, and diet.

Making of mustard and other poultices.

Circulation of the blood; hemorrhages and how to stop them.

Treatment and dressing of wounds; bandaging.

Drowning and fainting; resuscitation.

Poisons and their antidotes.

Fractures and sprains.

Agricultural Subjects: FRUIT GROWING.—Storing fruits for winter. Selection of location and planting plans for orchards; varieties suited to local planting; orchard management and care; methods of pruning and grafting; methods of budding and propagation by cuttings.

FLORICULTURE.—Storing and care of house plants in winter; preparation for winter of tender climbing plants, shrubs and flowers; lifting, dividing and replanting perennials.

VEGETABLE GARDENING.—Storing vegetables for winter; methods of winter forcing of rhubarb, Swiss chard, etc.; preparations and seeding for early spring crops.

BEEKEEPING.—First year's work continued.

DAIRY HUSBANDRY.—Simple analysis of milk to show albumin, casein, and sugar; composition and value of whey and buttermilk; experiments to show effects of mould or bacterial contamination; construction, care and advantages of cream separator; manufacture of butter and cheese; dairy manufacturing; visit to creamery or evaporator.

BACTERIOLOGY.—Moulds and bacteria in relation to canning and preserving; methods of canning; work of bacteria in soil; legume bacteria.

ENTOMOLOGY.—First year's work continued.

RURAL ECONOMICS.—Laws relating to agriculture; organizations for advancing agriculture; Women's Institutes; co-operative associations; value of good roads; rural advancement, etc.

FIRST AND SECOND YEARS

Home Projects.—The following is a list of suggested home projects:

HOUSEHOLD SCIENCE SUBJECTS: (1) Planning and carrying out the decoration of a house or a room.

(2) Planning a menu, and cooking and serving a meal and preparing school and picnic lunches for a given number of people.

(3) Taking sole charge of the house for a definite period during the holidays.

(4) Taking charge of the Saturday cleaning for a definite period.

(5) Taking care of the silver and cutlery in the home.

(6) Taking charge of the household linen and the storage of winter clothing for the summer.

(7) Taking charge of the mending and darning required in the home.

(8) Canning and preserving fruit for winter use.

(9) Assisting in the planning of a new house or the remodelling and furnishing of an old one.

(10) Taking special care, for definite periods, of children under school age.

AGRICULTURAL SUBJECTS: Suitable selections from the subjects of Agricultural Home projects for boys, dealing with beekeeping, poultry, husbandry, dairy husbandry, and entomology.

INSTRUCTIONS: 1.—The Home projects in Household Science are intended to bring the instruction of the classroom into close and practical relation to the home life. The projects should be such as occur in the ordinary routine of the home. Mutatis mutandis, the mode of dealing with these projects is the same as that provided for Agricultural Home projects in Instructions No. 1, pp. 19 and 20.

2.—Only in exceptional cases can the work in the Household Science subjects be directly supervised in the home. The teacher should endeavour to secure the hearty co-operation of the parents. This can generally be done through the organization of a Parents' and Teachers' Association. It should be understood that the Home projects are an integral part of the course in Household Science, and the pupils should be required to keep a systematic record of the work done in this connection.

Arithmetic.—The applications of Arithmetic, when necessary, to calculations in the courses of the First and Second years.

INSPECTION

18. (1) Subject to instructions from the Minister, the Director of Elementary Agricultural Education and the Inspector of Household Science and Manual Training shall respectively inspect the Agricultural and Household Science Departments for at least one day each year.

(2) The powers of these Inspectors in relation to their departments shall be the same as those of the High and Continuation School Inspectors in relation to the schools under their charge.

(3) On application to the Minister, the services of the Director and the Inspector will be available to School Boards for the purposes of the establishment and organization of the departments of Agriculture and Household Science.

DISTRIBUTION OF GOVERNMENT GRANTS

19. Continuation or High Schools or Collegiate Institutes shall be entitled to grants from the Department of Education for their Agricultural or Household Science department or for both departments in accordance with the following scheme, provided they have complied with the Regulations in regard to accommodations, equipment, courses, staffs, and organization (1) of said department or departments, and (2) of the class of school to which said department or departments belong.

I. Agricultural Department

Fixed Grants

(1) An annual fixed grant of $150 for each year of the course in Agriculture.

Equipment

(2) (*a*) Fifty per cent. of the value of the equipment for Farm Mechanics for the first year and twenty-five per cent. of the value of said equipment for each of the two years thereafter—maximum total grant $750.

(*b*) Fifty per cent. of the value of the rest of the agricultural equipment for the first year and twenty-five per cent. of the value of said equipment for each of two years thereafter. Maximum total grants for the three years $500.

Accommodations

(3) An annual grant on special accommodations, as follows:

Agricultural Classroom

	Room	Water Supply	Tables	Black-boards	Lighting	Heating	Ventila-tion	Store-room
	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
Grade I.....	15 00	6 00	9 00	2 00	6 00	6 00	6 00	10 00
" II.....	11 25	4 50	5 75	1 50	4 50	4 50	4 50	7 50
" III.....	7 50	3 00	4 50	1 00	3 00	3 00	3 00	5 00
" IV.....	3 75	1 50	2 25	50	1 50	1 50	1 50	2 50

Experimental Plots

Grade I, $50; grade II, $37.50; grade III, $25.00; grade IV, $12.50.

Workshop

	Room	Water Supply	Black-board	Lighting	Heating	Ventila-tion	Stock-room
	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
Grade I.....	15 00	6 00	2 00	6 00	6 00	6 00	10 00
" II.....	11 25	4 50	1 50	4 50	4 50	4 50	7 50
" III.....	7 50	3 00	1 00	3 00	3 00	3 00	5 00
" IV.....	3 75	1 50	50	1 50	1 50	1 50	2 50

Salaries

(4) Annual grants as follows:

(*a*) (i) Fifty per cent. of the expenditure for the salaries of the staff of the Agricultural department when the whole course is taken up; maximum, $750.

(ii) When Farm Mechanics is not taken up, the maximum grant shall be $600.

(*b*) Fifty per cent. of each of the following payments, on the recommendation of the Advisory Agricultural Committee:

(i) To the teacher of Agriculture for supervising the Home projects as prescribed by Regulation, at the rate of $5.00 a day of five and a half hours, including the time spent in travelling. For each year's class, the grant thall be: for supervision during the school year, maximum $100; for supervision during the Summer holidays, maximum $50.

(ii) To the teacher of Agriculture for travelling expenses in connection with the supervision of each year's class, maximum $100.

(iii) To the special lecturer or lecturers in the Agricultural subjects; maximum grant $50.

II. Household Science Department

Fixed Grants

(1) A fixed annual grant of $150 for each year of the course.

Equipment

(2) Fifty per cent. of the value of the equipment for the Household Science subjects for the first year and twenty-five per cent. of the value of said equipment for each of the two years thereafter. Maximum total grant for the three years, $500.

Accommodations

(3) An annual grant on the special accommodations, as follows:

	Kitchen	Tables	Water Supply	Black-boards	Light-ing	Heat-ing	Ventila-tion	Store-room, pantry, cupboard	Dining-room	Laun-dry
	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
Grade I...	15 00	9 00	6 00	2 00	6 00	6 00	6 00	10 00	15 00	15 00
" II...	11 25	5 75	4 50	1 50	4 50	4 50	4 50	7 50	11 25	11 25
" III...	7 50	4 50	3 00	1 00	3 00	3 00	3 00	5 00	7 50	7 50
" IV...	3 75	2 25	1 50	50	1 50	1 50	1 50	2 50	3 75	3 75

Salaries

(4) An annual grant of fifty per cent. of the expenditure for the salaries of the staff of the Household Science department if the whole course is taken up. Maximum total grant, $600.

(5) If the supervision of the Home projects of the agricultural subjects of the Household Science department is under the charge of the teacher of such department, the grants for such supervision shall be on the same bases as those provided for in Regulation 19 (4) (*b*) (i) and (ii), above.

NOTE.—To suit the reorganization of the work in Agriculture formerly done under the Ministers of Education and Agriculture, Section 33 (2) of the High Schools Act and Section 8 (4) of the Continuation Schools Act have been rescinded. By amendments made to the High and Continuation Schools Acts, County Councils may make grants in aid of the Agricultural and Household Science departments. As the grants offered in this Circular are provided by the Dominion Government, County Councils, are not required to provide equivalent grants.

APPENDICES

Seasonal Course in the Agricultural Subjects.

Equipment of Agricultural and Household Science Departments.

Appendices

APPENDIX A

SEASONAL COURSE IN THE SPECIAL AGRICULTURAL SUBJECTS

FIRST YEAR

September

Physics: Measurements of fields and surveys for drainage; need, value and methods of drainage.

Gardening: Selection, purchase and outdoor planting of bulbs; methods of potting and forcing bulbs for winter bloom.

October

Plant Studies: Field studies of weeds; habits of growth and seed distribution; methods of eradication.

Fruit Growing: Fall management of orchard, pruning and cultivation; methods and systems of fruit packing; work of co-operative fruit associations; law relating to fruit marking, etc.

Beekeeping: Management of bees in fall and winter.

November

Poultry: Housing, feeding and management of poultry in winter; fattening and marketing; breeds.

Horticulture: Cutting scions from fruit trees to store for root-grafting in winter. Planting apple seeds for production of seedlings.

December

Chemistry: Simple study of plant substances, such as determination of moisture, carbon, ash, starch, and gluten; simple studies of soils, insecticides, fungicides, and common substances used on the farm.

School Meeting: Public meeting at school at which reports on work done will be given and prizes distributed.

January

School Progress Club: Organization and plans for home project work: arrangements for preliminary reading, recording, and supervising work.

Dairying: Milk testing with Babcock tester; care of milk and pasteurization; use of lactometer; individual cow records and herd improvement; care of dairy herd; construction of dairy stables.

February

Botany: Determination of weed seed impurities in clover seed, etc.; germination tests of farm and garden seeds; Seed Control Act; methods of combating weeds.

March

Soil Studies: Simple physical analyses of different classes; comparisons by weight; determination of air and water capacities, capillarity; effects of frost, lime and humus on clay.

Gardening: Preparation, care and uses of hot bed and cold frame; methods of growing potatoes, onions, rhubarb, lettuce, cabbage, tomatoes, etc., for early crops; small fruit culture; methods of growing strawberries, raspberries, currants, grapes, etc.

April

Poultry: Incubation, brooding and rearing of chicks; management of poultry in summer.

Gardening: Beautifying of home surroundings; plans for home gardens; preparation of soil; selection of varieties; planting tables; care of growing plants.

May

Garden Work: Preparation and planting of experimental and demonstration plots in school garden; work in home gardens.

Beekeeping: Colony studies to learn organization, life histories and work of bees; construction of hives; methods of handling.

Botany: Study of flowers of fruit trees, the setting and development of fruit; natural and artificial fertilization; flowers and seed-development of forest and shade trees.

June

Insects: Recognition, life histories, work and remedies for insects injurious to orchard and garden; spraying mixtures and application.

Botany: Study of economic plants, such as grasses, ornamental shrubbery, garden flowers.

Crop Improvement: Plans for selecting choicest seed of grains, vegetables or flowers for next year's growing; work of Canadian Seed Growers' Association.

July and August

Supervision of Practical Work: Reports on care and management of school experimental plots and home projects of pupils.

SECOND YEAR

September

Gardening: Storing vegetables, fruits and house plants for winter; methods of winter forcing of rhubarb, Swiss chard; preparations and seeding for early spring crops.

Bacteriology: Moulds and bacteria in relation to canning and preserving; methods of canning. Work of bacteria in soil; legume bacteria.

October

School Exhibit: Exhibition of pupils' and school's work at school or local fair.

Horticulture: Preparation for winter of tender climbing plants, shrubs and flowers; lifting, dividing and replanting perennials.

Home Projects: Reports on home gardening projects and summarizing results.

November

Farm Animals: Breeds of cows, horses, sheep and swine; practice in using score cards; telling of age of horses by teeth; care and management of farm animals; construction of stables.

December

Agricultural Arithmetic: Estimating of holding capacities of mows, bins, waggon boxes, silos, cisterns, wells, troughs, barrels, milk utensils; estimate of weights of hay loads, stacks, manure piles; estimate of sand, cement, lime, brick, stone or lumber required in building barns, sheds, silos, etc.

Rural Economics: Laws relating to agriculture; organizations for advancing agriculture; co-operative associations; value of good roads; rural advancement, etc.

January

Dairying: Simple analysis of milk to show albumin, casein and sugar; composition and value of whey and buttermilk; experiments to show effects of bacteria or mould contamination; construction, care and advantages of cream separator; manufacture of butter and cheese; dairy manufacturing; visit to creamery or evaporator.

February

Farm Crops: Kinds of farming and the best kinds for the neighbourhood; crops best suited to locality and best varieties of grains; methods of crop improvement; systems of rotation and values; plans for model farms.

March

Physics: Principles of farm machines or appliances; simple experiments with pulleys, levers, etc.

Chemistry: Uses of manures and fertilizers; examination, identifications and simple tests for common commercial fertilizers; calculation of values and proportions in which to be mixed.

April

Fruit Growing: Selection of location and planting plans for orchards: varieties suited to local planting; orchard management and care; methods of pruning and grafting.

Agriculture: Methods of soil cultivation; best times and methods of seeding. Farm management: care of machinery, costs of manuring, soil preparation, seeding, harvesting, threshing and marketing.

May

Garden Work: Work in home gardens or school plots.
Botany: First year's work continued.
Beekeeping: First year's work continued.

June

Insects: First year's work continued.
Botany: First year's work continued with study of common plant diseases and treatment for them.
Horticulture: Methods of budding and propagation by cuttings.

July and August

Supervision of Practical Work: Reports on care and management of school experimental plots and home projects.

NOTE.—All prices quoted in this circular were current in 1914 and, doubtless, do not hold good in 1924. They are given, however, for general information and may prove of use in making relative estimates.

APPENDIX B

EQUIPMENT FOR THE AGRICULTURAL DEPARTMENT

SCIENCE AND AGRICULTURE

Chemistry

The same equipment as is used by the general classes will suffice.

Botany, Entomology and Bacteriology

In addition to the microscopes, etc., used by the general classes, a supply of special lenses for seed work will be needed . . . . . each 25c— $0 50

Physics

Bostrom and Brady Farm Level and Levelling Rod		17 00
Surveyor's Chain and Arrows		16 00
Harvard (Cenco) Trip Balance		6 00
Soil Tubes—Zinc	each	25
Soil Tubes—Brass	each	75
Set of Soil Sieves		7 00
Set of Levers, Pulleys and Weights		15 00
Rain Gauge		2 00
Maximum and Minimum Thermometers		5 00
Aneroid Barometer		5 00

Horticulture

Samples of standard apple boxes and barrels	each, 25c—	50
Press for packing apples		5 00
Pruning and Grafting Tools (saw, knife, clippers, chisel)		5 00
Hand spraying outfit		10 00
Samples of Garden Tools (wheel-hoe, digging forks, weeders, hoes, etc.)		12 00

Beekeeping

Standard Bee Hive—10-frame Langstroth hive complete		3 50
Colony of Bees in 10-frame Langstroth hive	$12.00—	15 00
Small non-reversible extractor		10 00
Accessories (capping knife, wax foundation, bee brush, queen excluder)		3 00
Smoker	each	1 25
Veils	each, 25c—	50

Poultry Husbandry

Model of standard hen house	10 00
Model of portable colony house	3 50
Model of Feed Hopper	3 00
Model of hen and chicken coop	3 00
Trap nest	1 00
Incubator (may be loaned by manufacturer)	20 00
Brooder (may be loaned by manufacturer)	10 00

Field Husbandry

Set of grain measures	$2 00
Standard grain tester	10 00
Scales	8 00
Set of sieves for cleaning seed	2 00
Germinating boxes for seed testing, each	25

Dairy Husbandry

Cow testing outfit—Babcock milk tester, spring balances	10 00
Dairy thermometer	25
Lactometer	1 50
Barrel churn	$8.00— 10 00
Butter worker	$5.00— 10 00
Butter mould	50c.— 3 00
Samples of sanitary milk pails, $1.00—$2.00; creamer can, $1.50—$2.00; cream pail, $1.00—	2 00
Cream separator (may be loaned by manufacturer)	$75.00—150 00
Model of dairy barn (to be made by pupils).	

Animal Husbandry

Models of horse and cattle barns, sheep pens, pig pens, feeding racks, etc., to be made by pupils.

Charts and Lantern Slides

Charts and lantern slides illustrating breeds of cattle, economic plants and insects, farm building plans should be provided as the work develops.

REFERENCE LIBRARY

Agriculture

Beginnings in Agriculture. Macmillan Co. Mann	$0 75
Farm Management. Macmillan Co. Warren	1 75
Elements of Agriculture. Macmillan Co. Warren	1 10
First Book of Farming. Doubleday Page. Goodrich	1 00
Farmer of To-morrow. Macmillan Co. Anderson	1 50
Rural Arithmetic. Orange Judd Co. Calfee	0 75
Farm Arithmetic. Orange Judd Co. Burkett & Swartzel	1 00
Farm Accounts. Orange Judd Co. Smith & Thomas	0 35

Horticulture

Principles of Fruit Growing. Macmillan Co. Bailey	1 50
Manual of Gardening. Macmillan Co. Bailey	2 00
Vegetable Gardening. Orange Judd Co. Green	1 00
New Onion Culture. Orange Judd Co. Grainer	0 50
Tomato Culture. Orange Judd Co. Tracey	0 50
Bean Culture. Orange Judd Co. Sevey	0 50
A. B. C. of Potato Culture. Orange Judd Co. Terry	0 50
Asparagus. Orange Judd Co. Hexamer	0 50
Cabbages, Cauliflower and Allied Vegetables. Orange Judd Co. Allen	0 50
Celery Culture. Orange Judd Co. Beatty	0 50
Flowers and How to Grow Them. Penn. Pub. Co. Rexford	0 50
Home Floriculture. Orange Judd Co. Rexford	1 00
Vines and How to Grow Them. Orange Judd Co. McCullen	1 10
Landscape Gardening. Orange Judd Co. Waugh	1 00

Farm Animals

Types and Breeds of Farm Animals. Ginn & Co. Plumb	$2 00
Judging Live Stock. Kenyon Printing Co. Craig	1 50

Dairying

Canadian Dairying. Briggs Pub. Co. Dean	0 90
Farm Dairying. A. A. McClure & Co., Chicago. Laura Rose	1 25
Testing Milk and Its Products. Mendota Book Co. Farrington & Woll	1 25

Poultry

Poultry Production. Lea & Febiger, N.Y. Lippincott	2 00
Principles and Practices of Poultry Culture. Ginn & Co. Robinson	2 50
Productive Poultry Husbandry. J. B. Lippincott & Co. Lewis	2 00

Beekeeping

A. B. C. of Beekeeping. A. I. Root, Medina. Root	1 75
The Honey Bee. Dadant & Sons. Langstroth	1 25

Entomology

Elementary Entomology. Ginn & Co., N.Y. Sanderson & Jackson	2 00
Manual for the Study of Insects. Comstock Pub. Co. Comstock	3 50
Insect Pests of Farm, Garden and Orchard. John Wiley & Sons. Sanderson	3 00

Bacteriology

Microbiology. T. Blakiston's Sons. Marshall	2 50
Bacteria, Yeasts and Moulds in the Home. Ginn & Co. Conn	1 00

Physics and Chemistry

Soil. Macmillan Co. King	1 50
Chemistry of the Farm. Vinton & Co., London, Eng. Warrington	0 95
Chemistry of Plant and Animal Life. Macmillan Co. Snyder	1 50

Botany

Field, Forest and Garden Botany. Macmillan Co. Gray	1 80

Rural Economics and Sociology

Challenge of the Country. Association Press, N.Y. Fiske	0 75
Rural Life in Canada. Westminster Co., Toronto. McDougall	1 00
Principles of Rural Economics. Ginn & Co. Carver	1 30
Agricultural Co-operation. P. S. King & Son, London, Eng. Wolff	1 90
Co-operation Among Farmers. University Chicago Press. Butterfield	1 00

Journals

The Canadian Farm	1 00
The Canadian Countryman	1 00

The Farmers' Magazine	$2 00
The Farmers' Advocate	1 50
Farm and Dairy	1 50
The Canadian Horticulturist	1 00
The Canadian Horticulturist and Beekeeper	1 00
The Canadian Poultry Review	60
The O. A. C. Review	50

FARM MECHANICS

Bench

Bench Hook	$0 25
Springfield Drawing Kit	50
Pencil Compass	15
Drawing Rule, 12 inches long, inches and centimeters	20
Bench Whisk	09
Marking Gauge, No. 64½	27
Try Square, No. 12, 6 inches	25
Jack Plane	1 57
Firmer Chisel, plain, 1 inch, handled	24
Firmer Chisel, plain, ¼ inch, handled	21
Firmer Chisel, plain, ¼ inch, handled, square edge	12
Back Saw, 10 inches, 16 teeth to 1 inch	95

Tools for General Use

1 Smooth Plane for every 5 boys	$2 00
1 Try Square, No. 12, 12 inches, for every 5 boys	75
2 File Cards and Brushes	50
3 Screw Drivers, round, 3 inches	1 03
2 Screw Drivers, round, 6 inches	40
3 Half Round Files, handled, 8 inches	45
3 Flat Files, handled, 8 inches	34
1 Saw File, 4 inches, handled	10
1 Brace, 6 inches sweep, for every 5 boys	1 10
2 Centre Bits, 1⅛ inches	24
2 " 1 inch	24
2 " ¾ "	20
2 " ½ "	20
2 " ¼ "	16
2 Auger Bits, ¼ inch	40
2 Auger Bits, ⅜ inch	40
2 Auger Bits, ⅝ inch	57
2 Countersinks, metal	10
2 Countersinks, wood	10
1 Iron Rabbet Plane	1 48
1 Jointer Plane	3 40
4 Gimlets, assorted sizes	20
6 Brad-awls, handled, fine size	25
4 Steel Scrapers, convex, 2 inches wide	80
1 Mallet, hickory, round head, for every 5 boys	25
2 Firmer Chisels, 1/16 inch, handled, square edge	30

2	Firmer Chisels, 1/8 inch, handled, square edge	$0 30
2	Firmer Chisels, ¾ inch, handled, square edge	50
2	Bevels, 8 inch, sliding	55
2	Mortise gauges	1 20
4	Nail Sets, knurled	30
1	Iron Spoke Shave, for every 3 boys	35
2	Wood Hand Screws, 10 inches	71
4	Malleable Iron Clamps, 4 inches	94
2	Oil Stones, mounted, 8 inches	1 40
2	Slips for gouges	10
1	Brass Oil Can, No. 22	15
2	Pairs Pincers, 6 inches	30
5	Pairs Wing Dividers	1 05
1	Pair Cutting Pliers, side	34
1	Pair Round Nosed Pliers, 5 inches	20
1	Hammer, 13 oz., No. 2, for every 3 boys	65
2	Firmer Gouges, 1 1/8 inches, handled	50
2	Firmer Gouges, ½ inch, handled	34
2	Firmer Gouges, ¾ inch, handled	46
2	Firmer Gouges, ½ inch, handled	42
1	Hatchet	35
1	Pad Saw, No. 5	20
2	Turning Saws, 10 inches	1 80
2	Turning Saws, 12 inches	1 80
2	Cross Cut Saws, 22 inches	2 20
2	Rip Saws, 22 inches	2 20
1	Black Board, T square, 2 sets squares and compasses	4 00
1	Saw Bench	2 00
1	Tool Grinder	4 00
	Tool Racks	
1	Grindstone	15 00

Forge

One anvil (100 to 125 lbs.) set on hardwood block, suitably bedded in the ground at least 18 inches; 1 toolstand, 14 inches by 21 inches by 27 inches high. This may contain three or more drawers for storage of work on which each boy is engaged; anvils cost from 10 to 12 cents per lb.

Also one each of the following: fire set; ¼-inch flat jaw tongs, 16 inches; 3/8-inch flat jaw tongs, 16 inches; ½-inch flat jaw tongs, 16 inches; ¾-inch flat jaw tongs, 16 inches; gad tongs, pick-up tongs, 1 1/8 inches; hot chisel (square stock) 1 1/8 inches; hammer (square face); flatter, 2 inches (square face); ¼-inch round hand punch; 1½ or 1¼-inch ball pein hammer; caliper rule; 1 centre punch. Estimated cost, $38.00.

The following tools for general use are also necessary: 1 hardie, 1 cold set, 1 pair 3/8-inch fullers, 1 pair ¾-inch fullers, 1 brass 2-ft. rule, 1 pair 9-inch calipers, 1 pair 4-inch outside calipers, 1 steel square, 1 light forging hammer, 1 heavier forging hammer, 1 sledge hammer (8 lbs.) for every three pupils. Estimated cost $18.00.

Ministry of Education, Ontario
Historical Collection

REFERENCE LIBRARY

The work shop should be furnished with a bookcase and a rack for magazines and illustrated catalogues. Many firms publish the latter richly illustrated with actual photographs, which can be used in teaching design and proportion. A scrap book in which to store drawings, cuttings, and photographs is also desirable. The following list of books is recommended for reference: for other suitable reference books, see Reference Catalogue, issued by the Department of Education:

General

Arts and Crafts for Beginners. Sanford..... $1 00
Century Co., New York.
The American Boy's Handy Book. Baird..... 2 00
Charles Scribner's Sons, New York.
Home Mechanics for Amateurs. Hopkins..... 1 00
Munn & Co., New York.
Mechanics Own Book.....
E. and F. N. Spon, Ltd., 57 Haymarket, London, S.W.

Wood Working

Hand Work in Wood. Noyes..... $2 00
McClelland & Goodchild, Toronto.
Woodwork for Beginners. Wheeler, G.....
G. P. Putnam's Sons, New York.
Manual of Carpentry and Joinery. Riley..... 2 00
The Macmillan Company of Canada, Toronto.
Essentials of Wood Working. Griffiths..... 1 00
McClelland & Goodchild, Toronto.
Problems in Wood Working. Murray..... 75
McClelland & Goodchild, Toronto.
Problems in Furniture Making. Crawshaw..... 1 00
McClelland & Good child, Toronto.
Wood Turning. Ross..... 1 00
Ginn & Co., New York.
Wood Working. Hasluck..... 9s.
Cassell & Company, Ltd., Toronto.
Cabinet Work and Joinery. Hasluck..... 7s. 6d.
Cassell & Company, Ltd., Toronto.
Carpentry and Joinery. Hasluck..... 7s. 6d.
Cassell & Company, Ltd., Toronto.

Metal Working

Elementary: Foundry Practice. Richards..... $1 25
Macmillan Company.
Forge Practice. Bacon..... 1 50
John Wiley & Sons, New York.
Metal Working. Hasluck..... 9s.
Cassell & Company, Ltd., Toronto.
An Introduction to Metal Working. Pearson..... 2s.
John Murray, London.

Drawing

The Principles of Design. Batchelder..... $3 00
Inland Printer Co., Chicago.

Mechanical Drawing. Cross..... 1 00
Ginn & Co., New York.

Timber and Trees

Our Native Trees. Keeler..... 2 00
McClelland & Goodchild, Toronto.

Wood and Forest. Noyes..... 2 00
Manual Arts Press, Peoria, Ill.

APPENDIX C

EQUIPMENT FOR THE HOUSEHOLD SCIENCE DEPARTMENT

GENERAL

Graniteware

20 Saucepans No. 12, with covers.
20 Saucepans No. 10.
2 2-Quart saucepans, with covers.
2 4-Quart kettles, with covers.
4 Double boilers (1 qt.).
20 Small saucers.
20 Plates.
2 Colanders.
2 Coffee pots (1 qt.).
1 Funnel (medium size).
4 Round pudding dishes, 8-inch diameter.
2 Teakettles (medium size).
2 Pitchers (2 qts.).
6 Small dish pans.
10 Rinsing pans.
8 Soap dishes.
2 Sink strainers.
Scrap jars with covers for tables (bean pots may be used).
Estimated cost—$45.00.

Tinware, Russian Iron, etc.

20 Tin plates (to work on).
20 Measuring cups (½ pint size, marked also in thirds and fourths).
20 Small cake tins (size at top about 5½ x 2¾ inches).
20 Small timbale moulds.
10 Graters.
4 Nutmeg graters.
6 Apple corers.
10 Biscuit cutters.
4 Sets muffin pans (6 in each set).
2 Shallow tins (size to fit oven).
2 Skimmers.
1 Quart measure.
4 Steamers.
20 Salt shakers.
4 Pepper shakers.
1 Bread box.
1 Large flour tin } For supplies, but unnecessary if the teacher's table
1 Large sugar tin } has zinc-lined drawers.
1 Dust pan.
1 Meat pan and rack.
20 Small frying pans.
Estimated cost—$15.00.

Wire Goods

20 Egg beaters.
2 Dover egg beaters.
2 Toasters.
2 Cake coolers.
1 Large strainer.
20 5½-inch strainers.
1 Set meat skewers.
2 Potato mashers.
1 Flour sifter.
Estimated cost—$3.00.

Woodenware

20 Spoons for mixing (shallow bowls).
20 Small pastry boards—if not fitted in tables.
10 Small rolling pins.
2 Bread boards.
2 Chopping bowls.
10 Vegetable brushes.
8 Scrubbing brushes.
6 Scouring boards for knives.
Estimated cost—$9.00.

Crockery or Earthenware

20 Bowls with straight sides (1 quart).
20 Custard cups.
6 Bowls with flaring sides (1 quart).
6 Bowls (2 quarts).
6 Pitchers (1½ pints).
3 Pitchers (2 quarts).
6 Soup plates.
6 Teapots (1 pint).
Estimated cost—$7.00.

Cutlery

20 Tablespoons.
40 Teaspoons.
20 Knives and forks for desks.
20 Vegetable knives.
6 Spatulas.
1 Meat knife.
2 Bread knives.
2 Chopping knives.
Estimated cost—$20.00.

Glassware

2 Lemon reamers.
2 Dozen screw-top glass jars (½ pint).
1 Dozen 1-quart glass jars, japanned top.

1 Dozen 2-quart glass jars, japanned top.
2 Dozen ½-pint fruit jars.
2 Dozen jelly glasses.
Estimated cost—$5.50.

Miscellaneous

1 Food chopper.
1 Iron frying kettle.
1 Can opener.
1 Corkscrew.
1 Screw driver.
1 Pair scissors.
1 Cleaver.
1 Knife sharpener.
1 Set scales (6 lbs.).
1 Set fine knitting needles.
2 Trays—japanned or white metal.
6 Asbestos mats.
1 Match box.
1 Whisk for stove.
1 Polishing brush for stove.
1 Floor brush (short handled).
1 Broom.
1 Cleaning pail.
1 Garbage pail, with cover.
Estimated cost—$10.00.

Linen and Cloth

3 Dozen dish cloths, ¼ yard..
4 Dozen table cloths, ¼ yard.. } The cloths should be of different material so as to be easily distinguished.
4 Dozen dish towels, ⅞ yard.
6 Roller towels (2 yards).
2 Floor cloths.
6 Oven cloths (about ½ yard square).
6 Dusters.
3 Yards cheese cloth.
Estimated cost—$10.00.
Estimated total cost of utensils—not including serving dishes—$119.00.

Serving Dishes

Serving dishes to be used in kitchen; these may be omitted from dining-room equipment—if such an equipment is provided.

20 Cups and saucers.
20 Plates, tea size.
20 Cereal saucers.
2 Platters.
2 Vegetable dishes.
6 Plates, breakfast size.
2 Small pitchers.
2 Small sugar bowls.

6 Glasses.
20 Plated teaspoons.
20 Plated forks (medium size).
20 Plated knives (medium size).
3 Tablespoons.
Estimated cost of china and silver—$31.00.

Scientific Experiments

One doz. 4 oz. beakers, 1 doz. ½-pint flasks, 1 doz. 6-inch beakers, 2 doz. nests of test tubes (4, 5 and 6-inch), 1 doz. 2-inch watch glasses, 1 chemical thermometer, 1 microscope. Estimated cost, $35.22. If, when needed, a microscope can be borrowed from the High School, this cost will be reduced by about $27.00.

Dining Room

	Silence cloth	$1 50
	Dining-room Table and Chairs, oak	30 00
2	Linen Table Cloths	7 50
1	Dozen Linen Napkins	2 50
1	Dozen Linen Doilies	3 00
1	Dozen cereal saucers	1 20
1	Dozen tea cups and saucers	1 50
1	Dozen coffee cups and saucers	1 00
1	Dozen dinner plates	1 20
1	Dozen soup plates	60
1	Dozen tea plates	1 00
1	Bread plate	20
2	Covered vegetable dishes	75
2	Uncovered vegetable dishes	40
1	Large platter	1 00
1	Medium platter	50
1	Small platter	30
1	Medium salad dish	40
2	Tea pots	45
1	Cream pitcher	10
1	Sugar bowl	25
1	Glass fruit dish	30
3	Small salt shakers, glass	45
3	Pepper shakers, glass	45
1	Dozen teaspoons and coffee spoons, silver plated	2 00
1	Dozen dessert spoons, silver plated	2 50
4	Tablespoons, silver plated	2 00
1	Dozen knives, silver plated	3 00
1	Dozen forks, silver plated	2 50
1	Dozen glass tumblers	50
1	Water pitcher	50
	Total cost	$69 55

Dining-room table and chairs can, of course, be bought for less than the above prices. It would be better, however, to buy a good kitchen table than a

cheap dining table. The dishes should be selected from "open stock" so that when breakages occur they may be replaced with the same kind of dishes. The china should be subdued in colouring.

Laundry

24	Flat irons, 1 lb.	$8 00
12	Polishing irons, 1 lb.	4 00
26	Improved handles	3 85
14	Pony wash boards	1 75
72	Clothes pins	10
1	Clothes line	25
1	Grey blanket	3 00
10½	Yards cotton	1 05
6	Yards cheese cloth	30
	Total cost	$22 30

REFERENCE LIBRARY

Foods

Pure Foods. Olsen $0 75
Ginn & Co.

A Study of Foods. Wardall and White 70
Ginn & Co.

Food and What It Does. Greer 1 00
Ginn & Co.

Food and Dietetics. Hutchison 3 00
William Wood & Co., 51 Fifth Ave., N.Y.

Clean Milk. Belcher 1 00

Selection and Preparation of Food. Bevier & Vanmeter 75
Whitcomb & Barrows, Boston.

Sources, Chemistry and Uses of Food Products. Bailey 1 60
Blakiston.

Cookery

Lessons in Elementary Cooking. Jones $1 00
Whitcomb & Barrows.

Elements of the Theory and Practice of Cooking. Williams & Fisher. 1 00
Macmillan & Co., Toronto.

Fireless Cook Book. Mitchell 1 25
Whitcomb & Barrows, Boston.

Laundry Work

The Art of Laundry Work. Rankin .....

The Science of Laundry Work. Rankin ..... 1s. 6d.
Blackie & Son, London.

Household Management

Furnishings of a Modest Home. Daniels 1 00
School Arts Publishing Co., Boston.

How to Keep Household Accounts. Haskins 1 00
Harper Brothers, N.Y.

Homecraft in the Class Room. Mary Hill..... $0 60
Pitman & Sons.
Household Foes. Ravenhill..... 75
Sidgwick & Jackson.
Care of the House. Clark.....
Shelter and Clothing. Kinne & Cooley..... 1 00
Macmillan, Toronto.
The Woman Who Spends..... 1 00
Whitcomb & Barrows, Boston.
Health, Strength and Happiness. Saleeby..... 1 50
Grant Richards, Ltd., London.
Chemistry of Cooking and Cleaning. Richards & Elliott..... 1 00
Whitcomb & Barrows, Boston.
Hints and Helps for Home Nursing and Hygiene..... 40
Cosgrave.

Dairying

Farm Dairying. Laura Rose..... 1 25
McClelland & Goodchild, Toronto.

Needlework

Handicraft for Girls. McGlauflin..... 1 00
Manual Arts Press, Peoria, Ill.
Manual of Needlework and Cutting Out. Walker..... 3s. 6d.
Blackie & Son, Ltd., London.
Practical Home Millinery. Reeve..... 1 00
Longmans, Green & Co., London.
Home Economics Journal, Monthly.....$2 per annum.

NOTE.—*In addition to the books recommended above for reference in the, Agricultural and Household Science departments, the following should be referred to from time to time; they are usually procurable on application.*

Bulletins of the Dominion of Canada and its Provinces, and of Great Britain and the United States.

Descriptive catalogues of manufacturers of farm implements, etc., and of house decorators and house furnishers.

NOTE.—All prices quoted in this circular were current in 1914 and, doubtless, do not hold good in 1924. They are given, however, for general information and may prove of use in making relative estimates.

PRODUCED BY
The United Press
LIMITED
TORONTO
CANADA